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(54) **Gymnastic bicycle**

(57) The bicycle comprises a frame (1) having pivotably mounted thereon a tubular stem (2) capable of forward and backward oscillation which supports the handlebar (3), while at the rear it incorporates a tubular part (4) supporting the seat (5) and is provided with a pedal shaft (39) operable by respective pedals. A friction device (6) having an adjustable resistance is provided to permit the physical force of the user to be adjusted during rowing type exercise and is positioned between the lower end of the tubular stem (2) and the frame (1). A main vibrating mechanism (which can be rendered inoperative) is also provided and has as its main operating element a polygonal plate (37) securely mounted on the pedal shaft itself, the vibrations produced as a result of the operation of said main vibrating mechanism being transmitted to the handle-bar (3) via roller (36) and rod (34). Means including transverse bands (46) and (57) are also provided for transmitting said vibrations independently to the abdominal and lumbar regions of the user.

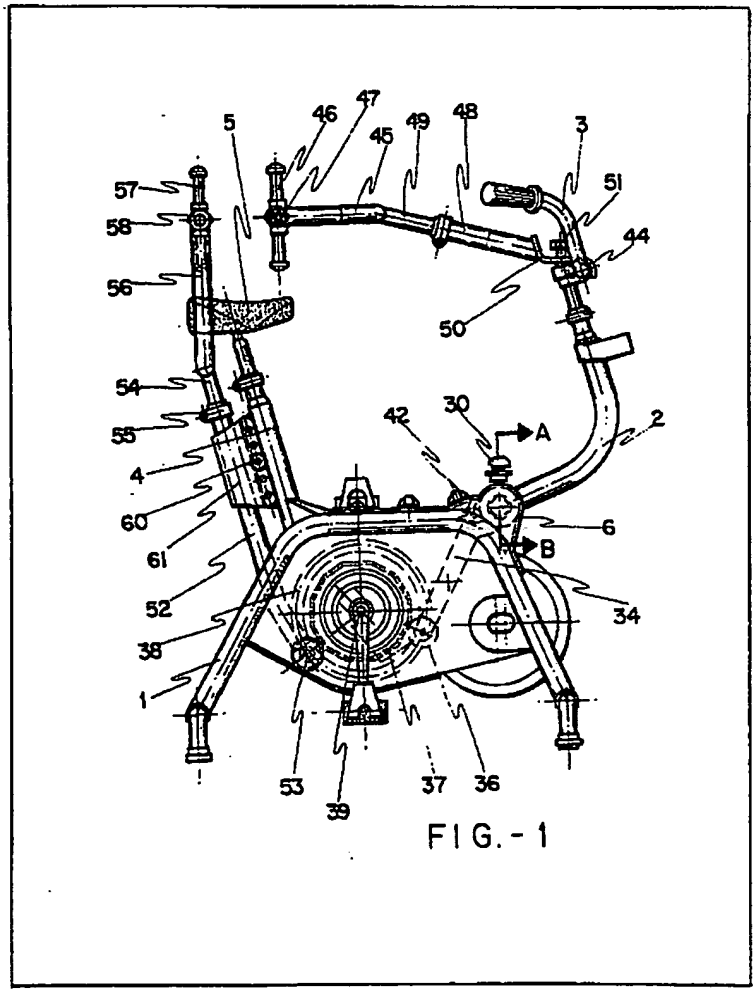

FIG. - 1

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This print takes account of replacement documents later filed to enable the application to comply with the formal requirements of the Patents Rules 1982.

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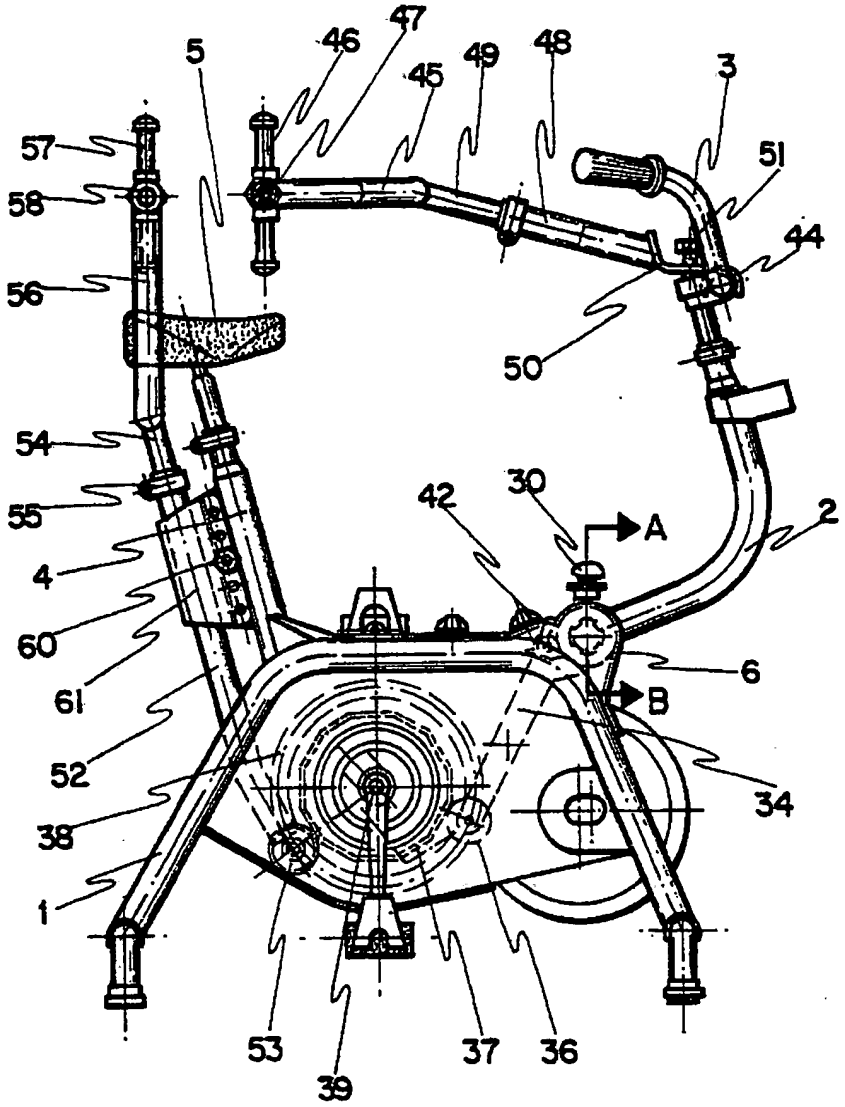
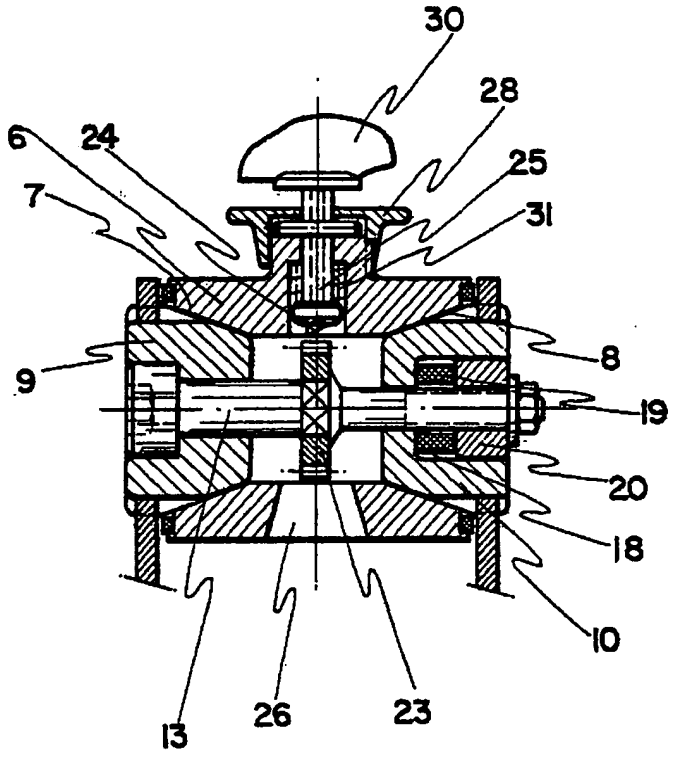


FIG. - 1



A - B

FIG. - 2

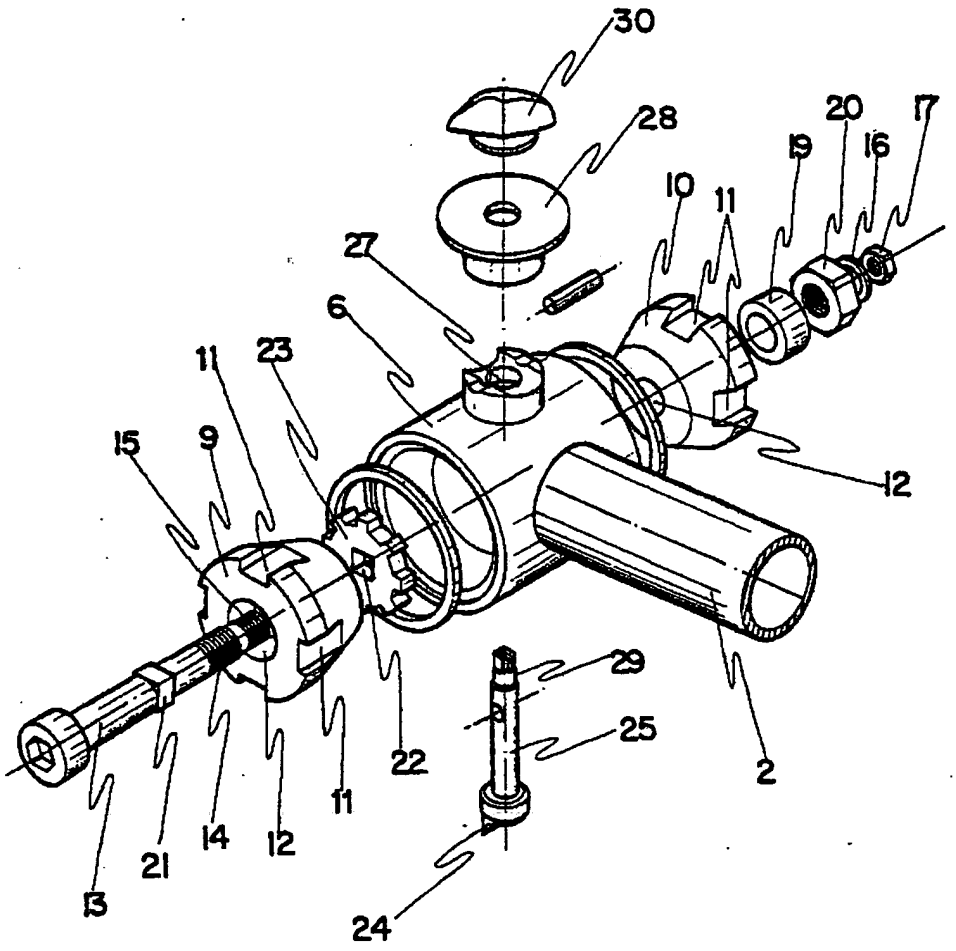


FIG.-3

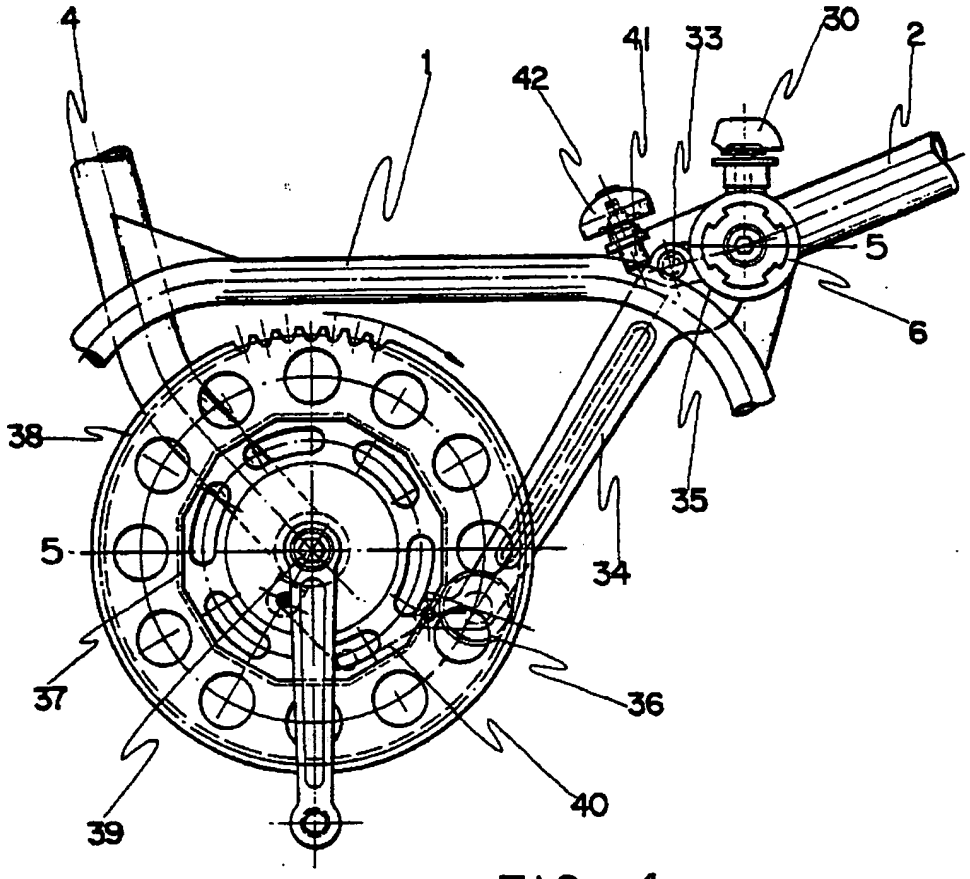


FIG.-4

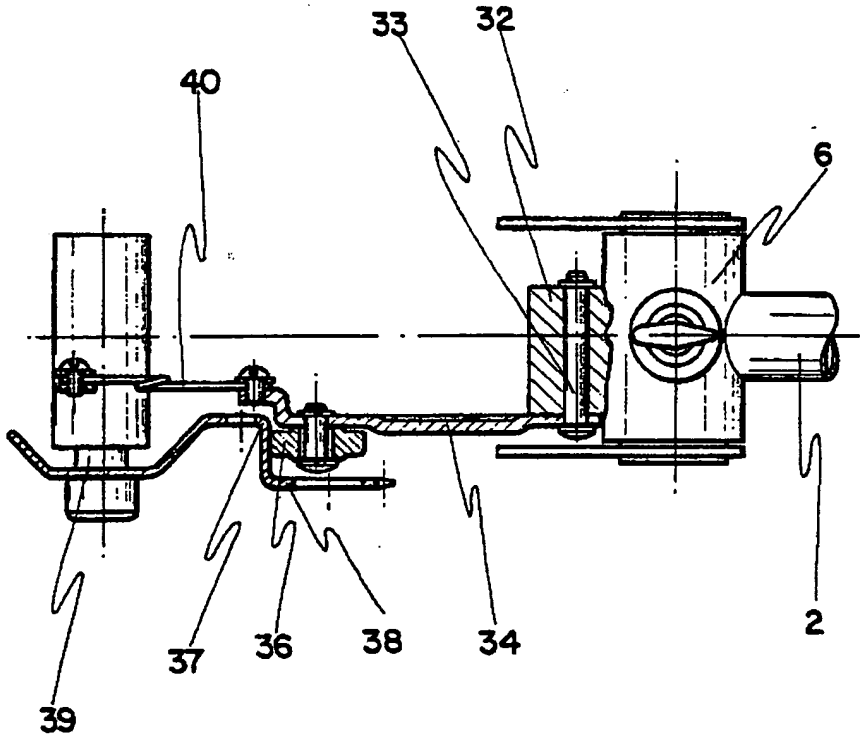


FIG.-5

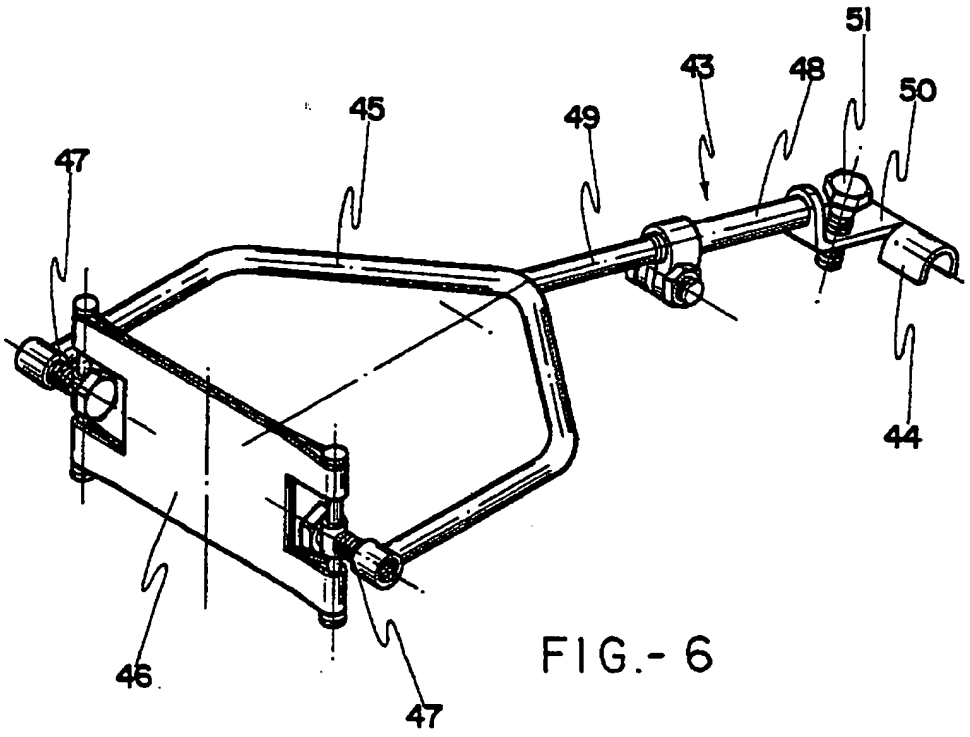


FIG.- 6

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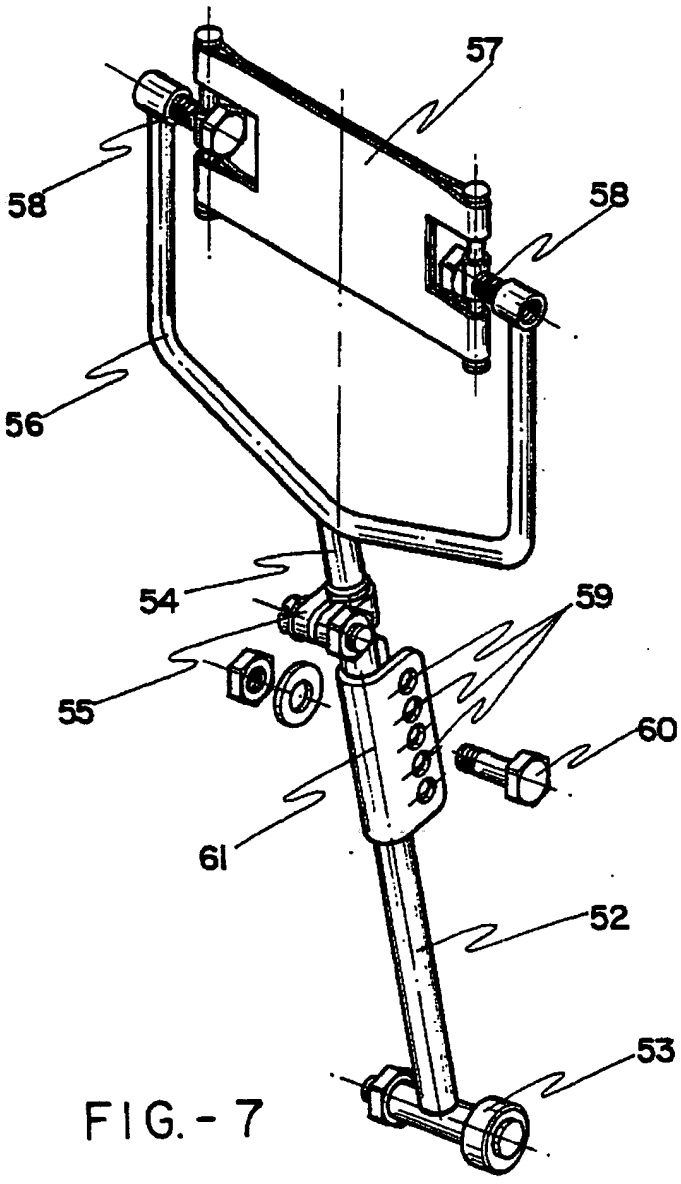

FIG.- 7

SPECIFICATION
Gymnastic bicycle

The present invention refers to a gymnastic bicycle which is so designed that the user can practice different physical exercises.

One of the objects of the invention consists in proportioning the gymnastic bicycle with a vibrating mechanism, the main element of which is comprised of a polygonal shaped plate mounted on the pedal shaft, wherefore the vibration produced by said plate is transmitted through suitable means to the handlebar of the bicycle.

Another object of the invention consists in proportioning the gymnastic bicycle with a friction device having an adjustable resistance, the purpose of which is to adjust the physical force used by the user during the exercises which resemble rowing, which takes place by using the handlebar itself of the bicycle.

A further object of the invention consists in proportioning the bicycle with a device which, joined to the main vibrating mechanism, permits the vibrations produced when pedalling to be transmitted to the abdomen of the user.

A final object of the invention consists in proportioning the bicycle with another device, likewise joined to the main vibrating mechanism, whereby the vibrations are transmitted to the lumbar region of the user.

Therefore, with the gymnastic bicycle object of the invention the user can practice the physical exercise resembling rowing which will be carried out by using the handlebar itself of the bicycle, while if the user practices the physical exercise of pedalling, vibrations will be produced which, through the handlebar itself and the previously mentioned devices joined to the main vibrating mechanism, are likewise transmitted to the abdomen and lumbar region of the user.

The friction device having an adjustable resistance, whose purpose is to adjust the physical force to be employed by the user during exercises resembling rowing, and which is carried out by using the handlebar itself of the bicycle, is so designed that the device itself permits the handlebar to be oscillating, in accordance with the longitudinal axis of the bicycle, wherefore the oscillation of said handlebar will be produced by the user with his own force.

The resistance to such oscillation is that which is developed by the user with his physical force, wherefore its degree of intensity is adjustable depending on the amount of force or the degree of preparation which the user desires to apply in his exercises. Said device basically consists of an axle joined to the lower end of the tubular piece or stem which supports the handlebar, which axle is disposed transversely and is capable of oscillating about its own axis, wherefore it is understood that the complete assembly of the handlebar is capable of producing displacements in the longitudinal direction of the frame of the bicycle due to the articulated fixing with which the mentioned axle is fastened.

The inner wall of said axle are mechanized so that said walls have truncated sections constituting sliding and friction paths for the corresponding sleeves or truncated pieces which fit therein. Likewise, there are provided tightening means which are joined to the general chassis of the bicycle and which form elements for proportioning a greater or lesser resistance to the turns of the axle and, consequently, to the oscillating movements of the handlebar to resemble the gymnastic exercises of rowing.

Therefore, the friction device having an adjustable resistance, previously mentioned, has a simple construction, it can readily be mechanized and, besides, it proportions an optimum functioning, effectiveness and accuracy in the purpose for which it is designed.

The main vibrating mechanism, is mainly characterised in that the axle corresponding to the previously described device, prolongs radially backwards into a considerably thick extension or appendix, said appendix being provided with a transversal hole to receive a pin acting as a freely rotating shaft for a connecting rod which, at its opposite end, is joined by means of a likewise transversal pin to a roller slidable along the polygonal edge of the plate constituting the main element of the mentioned vibrating mechanism.

The connecting rod mentioned in the preceding paragraph is hinged to the appendix or extension of the axle at a lateral zone of the end of the connecting rod, so that opposite to said articulation zone, the mentioned end of the connecting rod expands into a large curvo-concave section whose radius of curvature coincides with that of the outer surface of the axle to which it can be adapted in an operative position.

Referring to the roller which is slidable along the edges of the polygonal plate, it should be stated that said roller is permanently in contact with the mentioned polygonal edge of the plate, due to the traction of a spring which joins the previously mentioned connecting rod to the frame of the bicycle.

Thus, when the pedal shaft operates through the corresponding pedals, the polygonal plate will turn, wherefore since the roller is permanently in contact with said polygonal plate, a vibrating movement will be created in the handlebar itself of the bicycle, said movement being transmitted to the body of the user and more specifically on the abdomen of the user.

In the event that the vibrating mechanism should become inoperative, so that the bicycle can perform other functions, there is disposed on the appendix in which the axle prolongs and behind the articulation pin of the connecting rod, a screw provided with a driving head, which screw is mounted on the frame itself of the bicycle. Thus, when the mentioned screw is axially moved, the end thereof will push the appendix in which the axle prolongs, whereby said axle will make a partial turn and the corresponding oscillation of the appendix itself, moving therewith the

articulation pin of the connecting rod downwards and the curvo-concave expansion of said appendix being outside the field of action of the axle; thus the vibrating transmission is interrupted.

Finally, it should be stated, with reference to the mentioned vibrating mechanism, that the polygonal plate joined to the pedal shaft and along which the roller of the connecting rod slides, is constituted by a deformation of the sprocket wheel, in the form of a prismatic-polygonal recess therein.

The device joined to the previously mentioned vibrating mechanism and which permits the transmittion of the vibrations towards the abdomen of the user will hereinafter be denominated as the abdominal vibrating device.

Said abdominal vibrating device consists in adpating the end of a bar to the central zone of the handlebar, the opposite end of which bar prolongs into a fork between whose free ends there is retained a flexible transversal band which should be adapted to the abdominal region of the user. This device permits the vibrations produced in the main vibrating mechanism to be transmitted to the abdominal region of the user. The abdominal vibrating mechanism furthermore presents the important advantage that it can adopt different lengths since the bar which is adapted to the central zone of the handlebar is comprised of two telescopic tubes.

The device likewise joined to the main vibrating mechanism and which permits the vibrations originated by said main vibrating mechanism to be transmitted to the lumbar region of the user, will hereinafter be denominated as the lumbar vibrating device.

Said lumbar vibrating device is comprised of a band made of a flexible fabric material which is designed to clap the lumbar region of the user, said band being subjected to a rate of vibrations which is determined by the user himself, depending on the pace at which he pedals.

Said band of fabric material is mounted on the arms of the Y-shaped fork, whose vertical shaft is telescopic, having a descending arm which, behind a slight bend, is situated inferiorly in the proximities of the polygonal plate secured to the pedal shaft. At the end of the mentioned bend there is rotatingly fixed the roller which is in contact with the polygonal edge of the plate, wherefore during the turn of said roller this will be subjected to a series of blows, which are transmitted, through the descending arm of the fork to the band of fabric material, and which transmission of blows will take place in the form of mechanical vibrations which will operatively exercise on the user a highly therapeutic massage.

To compliment the description which will now be made and for a better understanding of the characteristics of the invention, there is accompanied to the present specification forming a part thereof, a set of drawings wherein, illustratively and not limiting, the following is represented:

Figure 1 illustrates a general schematic view corresponding to a side elevation of the gymnastic bicycle object of the invention;

Figure 2 illustrates a cross-sectional view along line A—B of figure 1, said section corresponding to the friction device having an adjustable resistance;

Figure 3 illustrates a perspective view of the different parts in a position to be coupled together and which constitute the device illustrated in the preceding figure;

Figure 4 illustrates a side view of the part of the bicycle whereat the main vibrating mechanism will be mounted;

Figure 5 is a cross-section taken along the line 5—5 of Figure 4;

Figure 6 illustrates a perspective view of the abdominal vibrating device;

Figure 7 illustrates a perspective view of the lumbar vibrating device.

Referring to the mentioned figures, there can be seen the gymnastic bicycle object of the invention which is comprised of a frame 1 formed by the corresponding general chassis thereof, said bicycle being provided with a corresponding tubular piece or stem 2 which supports the respective handle bar 3, while at the posterior part it has a tubular piece 4 whereon the seat 5 will be telescopically fixed.

The friction device having an adjustable resistance and which constitutes one of the objects of the invention is formed by a transversally disposed axle 6 joined to the lower end of the tubular piece or stem 2 which constitutes the support of the handlebar 3.

Said axle 6 forms internally two end truncated sections 7 and 8 which define friction sliding paths for truncated bodies 9 and 10, respectively, these being so formed that their lateral walls are continuously in close contact with the mentioned sections 7 and 8.

The truncated bodies 9 and 10 are provided with a series of peripheric grooves 11 in which there fit by matching, plates parallel to the major bases of said truncated bodies 9 and 10, which plates are provided with a grooving and tonguing and are secured to the chassis constituting the frame 1 of the bicycle itself. Likewise, the mentioned truncated bodies 9 and 10 are provided with an axial hole 12 through which there passes a screw 13 having, close to one of its ends, two threaded sections 14 and 25, differentiated and separated from one another. Said screw 13, which can turn freely in the inside of the holes 12, is introduced through the truncated body 9, so that the treaded section 15 emerges through the truncated body 10, receiving therein a washer 16 and a nut 17 which joins and connects the assembly of the pieces clearly illustrated in figure 3 and which, in an operative position, adopts the configuration illustrated in figure 2.

The truncated body 10 has, corresponding to its major base, a notch 18 to receive a small sleeve 19 and a nut 20, the contour of the mentioned notch being exactly identical to that of

the nut 20 so that this can be located in the notch 18 and prevented from turning.

The screw 13 has, at approximately the middle of its length, a section 21 having a quadrangular contour which should be housed in the quadrangular hole 22 provided in a pinion 23 which occupies the middle inner zone of the axle 6. Said pinion 23 constitutes the tightening means whereby the user selects the degree of resistance of the friction mechanism having an adjustable resistance which is being described and which is clearly illustrated in figures 2 and 3 as previously mentioned.

To select the degree of resistance, there has been provided a pawl 24 by means of which the mentioned pinion 23 can be activated and which pawl 24 pertains to a ratchet 25 which, previously inserted through the hole 26 made in the lower zone of the axle 6, protrudes through a diametrically opposed projection 27, while the mentioned ratchet 25 passes through an intermediate piece 28 and is locked, thanks to the notch 29, in an outer control 30, which control should be used by the user to adjust the resistance of the device or mechanism which is being described. The ratchet 25 is permanently subjected to the action of a spring 31 incorporated in the axle 6 itself.

According to the described structure, it can be understood that the greater the pressure exerted by the truncated bodies 9 and 10 against the respective sections 7 and 8, the greater the difficulty to be encountered by the axle 6 in its turn and, consequently, the tubular portion of stem 2 and the handlebar 3 so that it can oscilate. Thus, the pressure of these truncated bodies 9 and 10 is determined by the degree of threading of the nut 20 on the screw 13, so that the bodies 9 and 10, as a result of this threading, will tend to approach each other, pressing each time more against their respective sections 7 and 8.

The control 30 is capable of occupying different positions determining other positions for the pawl 24, with respect to the teeth of the pinion 23. In one of these positions the pawl 24, due to the action conferred thereto by the spring 31, will be fixed between two consecutive teeth of the pinion 23, making it turn provided that the handlebar 3 moves in a determined direction, for example, in the direction of being neared towards the seat 5 of the bicycle. However, the movement in the opposite direction, i.e. in which the handlebar 3 is separated from the seat 5, due always to the mentioned position of the control 30, the pinion 23 will not turn since the pawl 24 has a ratchet-like edge which will avoid the teeth of the pinion.

In another position of the control 30, the pawl will be locked in a manner contrary to that previously described, and during such locking the pinion 23 will be activated when the handlebar 3 is moved in the direction opposite to that previously mentioned.

Finally, when the control 30 occupies a third position, the pawl 24 is in a coplanar position with respect to the pinion 23, so that the edge of the pawl 24 is perpendicular to the teeth of the pinion 23 permanently sliding thereon without producing any action on said pinion 23.

Due to the movements of the pinion 23, produced by the position adopted by the control 30, the user can select the degree of resistance in the movement of the handlebar 3, since the turn of the pinion 23 necessarily involves the turn of the screw 13 and, consequently, the tightening or loosening thereof with respect to the nut 20, whereby the truncated bodies 9 and 10 will be neared or separated, respectively, obtaining different degrees of tightening and, therefore, resistance. Once the control 30 is suitably activated by the user and the degree of resistance of the device has been selected, the user himself will place said control in the position at which the pawl 24 will be inoperative, and he can start his exercises.

Referring to the main vibrating mechanism illustrated in figures 4 and 5, it can be said that said mechanism is characterised in that the axle 6 projects radially backwards into an appendix or extension 32 provided with a transversal hole in which there is housed a pin 33 acting as a freely rotating shaft for the connecting rod 34 which is hinged to the mentioned pin 33 at a lateral zone corresponding to the upper end thereof, as clearly illustrated in figure 4. The mentioned connecting rod 34, opposite to the articulation zone to the pin 33, expands into a large curvo-concave section 35, the radius of curvature of said section 35 coinciding with that of the outer surface of the axle 6, to which it can be adapted in an operative position.

The lower end of the connecting rod 34 is joined to a roller 36 which slides on the polygonal plate 37 constituting precisely the main element of the vibrating mechanism, and which polygonal plate 37 is constituted by a deformation of the sprocket wheel 38, in the form of a prismatic-polygonal recess therein. The mentioned sprocket wheel 38 and, consequently, the polygonal plate 37, is joined to the pedal shaft 39 turning therewith and constituting, as previously mentioned, the vibrating source, the roller being in permanent contact with the polygonal plate 37 due to the traction of a spring 40 which joins the connecting rod 34 to the general frame of the bicycle.

Thus, when the pedal shaft 39 turns through the activation of its corresponding pedals, the polygonal plate 37 will turn, wherefore due to the permanent contact of the roller 36 and the contour of said polygonal plate 37 and due likewise to the mentioned turn thereof, there will be produced a movement of the connecting rod 34 which will be vibrating and which will be transmitted to the axle 6 itself, the mentioned vibrating movement being likewise transmitted to the handlebar 3, which vibrations reach the user and will be concentrated in the abdominal region of the body of the user.

The vibrating mechanism thus constructed can become inoperative so that the bicycle can be

used for another purpose, such that of rowing which is carried out by the already described friction device having an adjustable resistance. For said vibrating device to be inoperative, there has been provided on the appendix 32 a screw 41 joined to the corresponding drive control 42 mounted on the general frame of the bicycle and close to the already mentioned control 33. Thus, the axial moment of the mentioned screw 41 will produce a push on the appendix 32 and, consequently, a push thereof on the pin 33, wherefore the concave surface 35 is no longer in contact with the axle 6, and the vibrating transmission is interrupted.

The mentioned abdominal vibrating device clearly illustrated in figure 6 which is joined to the previously mentioned main vibrating mechanism, i.e. the operation of said abdominal vibrating device is conditioned by the main vibrating mechanism, is comprised of a transmission rod 43, to one end of which there is incorporated a semi-clamp 44 to be coupled to the central zone of the handlebar 3, while the opposite end of said transmission rod 43 prolongs into a fork 45 so that between the ends of the arms of said fork 45 there is fixed a transversal elastic band 46 to be adapted to the abdominal region of the user, fixing of the elastic band 46 to the ends of the corresponding arms of the fork 45 taking place by tightening elements 47.

The transmission rod 43 is formed of two telescopically coupled tubes 48 and 48 which permit the fork 45 to be separated, when desired, from the handlebar 3.

The semi-clamp 44 prolongs into a short flat section 50 provided with a threaded hole in which there is housed a screw 51 which, since it rests on the upper end of the tubular piece or stem 2 supporting the handlbar, permits the degree of inclination of the transmission bar 43 and, therefore, of the complete assembly of the abdominal vibrating device to which reference is being made, to be adjusted at will.

With this structure there is obtained a device which permits the vibrations to be transmitted to the abdominal region of the user and the length to be adapted, since the transmission rod 43 is formed of the telescopic tubes 48 and 49. Likewise, it is possible to adjust the inclination of the complete assembly by actuating on the screw 51 to be able to select the accurate angle of inclination between the transmission rod 43 and the support of the handlebar 3.

The tension of the elastic band 46 can also be adjusted when activating the tightening elements 47 which are disposed on the ends of the arms corresponding to the fork 45.

That is to say, when the main vibrating mechanism acts, due to the turn of the polygonal plate 37, the vibrations of said mechanism are transmitted to the handlebar 3, as already mentioned, and therefrom to the device which has just been described and, consequently, to the elastic band 46 which is adapted to the abdominal region of the user.

Finally, there will be described the lumbar vibrating device which is illustrated in figure 6 whose functioning, as in the case of the abdominal vibrating device, is conditioned by the vibrations produced by the main vibrating mechanism which is obtained by the turn of the polygonal plate 37.

Said lumbar vibrating device is comprised of an arm or lever 52 which is hinged at its centre to the tubular piece 4 supporting the corresponding seat 5. Said arm or lever 52 incorporates a roller 53 which is advantageously positioned on the periphery of the polygonal plate 37, so that the periphery of said plate 37 and, consequently, the vertices thereof, will rest during the turn thereof on the corresponding periphery of the roller 53, proportioning a continuous source of vibration to the mentioned arm or lever 52.

Said arms 52 projects at the top into a telescopically coupled leg 54, wherefore fixing of the leg 54 to the arm 52 takes place by adjusting the clamp 55.

The upper end of the mentioned leg 54 prolongs into a fork 56 so that between the ends of the arm corresponding to said fork there is fixed a transversal elastic band 57 provided with tightening elements 58 joined to the ends of each one of the mentioned arms of the fork 56, the mentioned elastic band 57 being positioned precisely at the posterior part of the seat 5, so that same adapts to the lumber region of the user.

To facilitate adjustment of said band 57 to the lumbar region of the user, there is provided suitable means comprised of a U-shaped piece 61 fixed to the tubular piece 4 bearing the seat 5. Said piece 61 has a plurality of holes 59, faced in each one of the legs of the piece and constituting the passageway for a fixing element 60 comprised of a screw, by means of which the adjustment in the height and the angle of the complete lumbar vibrating device, which is being described, takes place.

Thus, depending on the hole 59 selected for the passageway of the fixing means or screw 60, there will be obtained different variations of the point of connection of the lever determining the arm 52 and, consequently, the relation between the driving leg and the leg of resistance of said arm 52 will be varied, obtaining the following variation in the magnitude of the vibration which is transmitted to the user, which vibration will always be generally controlled by the pace of pedalling.

Likewise, it should be stated that due to the telescopic adjustment between the arms 52 and the leg 54, the device can be used by any user, since by raising or lowering the leg 54, the elastic band 57 could be placed with precise accuracy behind the lumbar region on which the user wishes to apply the vibration. Likewise, due to the turn permitted by the adjustment elements 58, the band 57 can have its suitable angle, proportioning a comfortable use of the complete assembly.

CLAIMS

1. Gymnastic bicycle comprised of a general

frame fixable to the floor which frame incorporates at its anterior part the corresponding tubular part or stem which supports the handlebar, while at the posterior part it incorporates the corresponding tubular part supporting the seat and provided with a pedal shaft operable by the respective pedals, essentially characterised in that there is incorporated on the articulation zone between the lower end of the tubular piece or stem supporting the handlebar and the general frame of the bicycle, a friction device having an adjustable resistance which permits the physical force of the user to be adjusted when he practices the exercise corresponding to rowing, said exercise taking place by the forward and backward oscillation of the handlebar; in that it furthermore incorporates a main vibrating mechanism whose main operating element is comprised of a polygonal plate securely mounted on the pedal shaft itself, so that the vibrations produced as a result of the operation of said main vibrating mechanism are transmitted to the corresponding handlebar of the bicycle, as well as means for transmitting said vibrations independently to the abdominal region and to the lumbar region of the user; said means for transmitting the vibrations to the abdominal region of the user constituting a device called abdominal vibrating device which is installed on the handlebar itself, while the means for transmitting the vibrations to the lumber region constitute a device called lumbar vibrating device which is installed on the posterior part of the general frame of the bicycle and joined, in turn, to the corresponding tubular piece supporting the seat.

2. Gymnastic bicycle according to claim 1, characterised in that the friction device having an adjustable resistance is comprised of an axle fixed to the lower end of the tubular piece or stem supporting the handlebar, which axle is internally formed, in correspondence with the inlets thereof, by identical truncated sections and with the major bases thereof oriented inwards, coupled to said sectors there are truncated bodies joined together with an adjustable capacity of approximation and acting as an axis of rotation for the axle, said truncated bodies being provided with means for the locking thereof to the general frame of the bicycle, which means permit the axial displacement of said truncated bodies preventing the turn thereof.

3. Gymnastic bicycle according to claim 2, characterised in that the means for fixing the truncated bodies to the general frame consists of dentated holes made in two plates placed parallel to the major bases of the truncated bodies, and in that the axle is situated between said plates, while in the dentated holes there are coupled matching complementary bodies pertaining to the truncated bodies.

4. Gymnastic bicycle according to claims 2 and 3, characterised in that one of the truncated bodies is provided with an axial hole in which there is housed, with the possibility of rotating, a screw which joins said truncated body to its complementary body, and in that this latter is likewise provided with another axial hole having a widened end section with a polygonal contour, in which section there is housed a nut on which there will be threaded the mentioned screw, in such a way that the turn of the screw in one direction or the other causes the approximation or the separation between the truncated bodies.

5. Gymnastic bicycle according to claim 2, 3 or 4, characterised in that the screw which joins the pinion with which there collaborates a ratchet mounted radially with respect to the axle, and which ratchet is comprised of a tooth retractable against the tension of a spring, capable with the help of an outer control and with the turn about its axis, of occupying three positions with respect to the pinion, in one position said pinion is turned towards the right, while in the opposite position the pinion is hauled towards the left, and in the intermediate position the edge of the retractable tooth is located perpendicular to the shafts of the pinion on which they slide permanently in an inoperative position.

6. Gymnastic bicycle according to claims 1 and 2, characterised in that the main vibrating mechanism is comprised of a considerably thick appendix in which there prolongs radially backwards the axle joined to the lower end of the tubular piece or stem supporting the handlebar, said appendix having a transversal hole in which there is housed a pin acting as a freely rotating axis for a connecting rod, in that the articulation hole of said connecting rod is situated laterally at its upper end and existing thereabout a wide section having a constant radius, so that opposite to the mentioned section the corresponding end of the connecting rod expands into a large curvo-concave section whose radius of curvature coincides with that of the outer surface of the axle, to which it is capable of being adapted in an operative position, and in that the opposite end of the mentioned connecting rod incorporates a roller which slides on the edge of the polygonal plate joined to the pedal shaft, said roller maintaining a permanent contact with the edge of the mentioned polygonal plate due to the traction of a spring which joins the connecting rod to the general frame of the bicycle.

7. Gymnastic bicycle according to claim 6, characterised in that on the appendix in which the axle prolongs there is a screw joined to the corresponding operating head and installed on the general frame, so that the axial movement of said screws causes a partial turn of the axle and the corresponding oscillation of the appendix which is a prolongation thereof, the articulation pin of the connecting rod being moved downwards, whereby in the permanent oscillating movement of the connecting rod, proportioned by the pedal shaft, the curvo-concave expansion of said connecting rod looses contact with the axle, the vibrating transmission therefore being interrupted.

8. Gymnastic bicycle according to claim 6 and 7, characterised in that the polygonal plate joined to the pedal shaft is comprised of a deformation of the sprocket wheel, in the form of a prismatic-

polygonal recess therein.

9. Gymnastic bicycle according to claim 1, characterised in that the abdominal vibrating device is comprised of a transmission rod which, at its anterior end, incorporates a semi-clamp to be coupled to the central zone of the handlebar, while the posterior end of the mentioned transmission rod prolongs into a fork between the arms of which there is disposed a transversal flexible band fixed to the ends of said fork by respective tightening elements, and in that the mentioned transmission rod is comprised of two tubes telescopically coupled together, which permit the fork to be separated at will from the handlebar.

10. Gymnastic bicycle according to claim 9, characterised in that the semi-clamp incorporated at the anterior end of the transmission rod prolongs into a short flat section provided with a threaded hole in which there rests a screw which, on resting on the upper end of the tubular piece or stem supporting the handlebar, permits the degree of inclination of the transmission rod to be adjusted.

11. Gymnastic bicycle according to claim 1, characterised in that the lumbar vibrating device is comprised of an arm or lever which is capable of being hinged at its central zone to the tubular piece supporting the seat, the lower end of said arm or lever incorporating a roller which rests on the periphery or edge of the polygonal plate, while the other end of said arm prolongs into a fork between whose arms there is disposed a flexible transversal band fixed between the free ends of the arms of said fork by the corresponding tightening elements, the arm or lever being constituted by two telescopically coupled tubes, which permit the height of the fork to be adjusted.

12. Gymnastic bicycle according to claim 11, characterised in that the articulated joining of the arm or lever to the general frame of the bicycle takes place with the help of a U-shaped grooved piece on whose central leg there is secured the mentioned arm, while the lateral legs of said U-shaped piece are provided with alignments of operatively faced holes for the passage of a fixing element by means of which the height and the angle of the arm or lever itself are adjusted.

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